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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,126	09/08/2003	Keiji Okinaka	03560.003347	8651

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EXAMINER	
CANNING, ANTHONY J	
ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/656,126	OKINAKA ET AL.
	Examiner	Art Unit
	Anthony J. Canning	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was received and entered on 16 September 2005.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The examiner does not understand the limitation that the openings have a circular shape and a radius that is 0.7 to 3.0 times larger than that of a circular region in which a pencil of light rays has a largest average energy density. After having looked to the specification without further clarification the examiner rejects this claim, and is not able to provide an art rejection because a reasonable explanation of what a pencil of light rays actually means.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4, 7, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Forrest et al. (U.S. 6,125,226).

5. Regarding claim 1, Forrest et al. disclose an organic electroluminescent display including: an organic electroluminescent device (see Fig. 2C, item 100; column 3, lines 33-35), having a microcavity structure (see Fig. 2C, item 112; column 3, lines 36-38), capable of emitting light resonating in the microcavity structure (column 3, lines 36-38); a light-gathering structure, overlying the organic electroluminescent device (see Fig. 2C, items 112 and 113, the light gathering structure 112 is on top of the electroluminescent device), capable of gathering the light emitted from the organic electroluminescent device; a light-shielding layer (see Fig. 2C, item 111; column 3, line 35), overlying the light-gathering structure (see Fig. 2C, items 111 and 112; the light-shielding layer 111 overlies the light-gathering region 112), having an opening through which a portion of the light emitted from the organic electroluminescent device passes (see Fig. 2C, region near item 119; column 3, lines 35-38).

6. Regarding claim 4, Forrest et al. disclose an organic electroluminescent display including: an organic electroluminescent device array (see Fig. 2C, item 100; column 3, lines 20-25, lines 33-35) including a plurality of organic electroluminescent devices, each having a microcavity structure (see Fig. 2C, item 112; column 3, lines 36-38), capable of emitting light resonating in the microcavity structure (column 3, lines 36-38); a light-gathering layer including light-gathering structures overlying the light-gathering structures (see Fig. 2C, items 112 and 113, the light gathering structure 112 is on top of the electroluminescent device), arranged so as to correspond to the organic electroluminescent devices (see Fig. 2C), capable of gathering the

light emitted from the organic electroluminescent devices; and a light-shielding layer, overlying the light-gathering structures (see Fig. 2C, items 111 and 112; column 3, line 35; item 111 reflects light emitted from the organic layer, from exiting the device until it has been wave-guided to the opening in the light-shielding layer, therefore it shields the light's exit of the device) having openings through which a portion of the light emitted from the organic electroluminescent devices passes (see Fig. 2C, region near item 119; column 3, lines 35-38), wherein the organic electroluminescent devices are arranged in a plane and the openings are arranged so as to correspond to the light-gathering structures (see Fig. 2C).

7. Regarding claim 7, Forrest et al. disclose the display according to claim 4, wherein the light-gathering structures of the light-gathering layer are arranged at a pitch smaller than or equal to a pitch at which the organic electroluminescent devices of the organic electroluminescent device array are arranged. The light-gathering layer in figure 2C is item 112. The organic electroluminescent layer of figure 2C is item 113. Items 112 and 113 are parallel to one another; therefore they have the same pitch, or slope.

8. Regarding claim 9, Forrest et al. disclose the display according to claim 4, wherein the openings are arranged such that light emitted in the direction perpendicular to a plane on which the organic electroluminescent devices are arranged passes through each opening (see Fig. 2C, the light rays, drawn as lines and arrows, exit the waveguide perpendicular to the organic electroluminescent device).

Claim Rejections - 35 USC § 102 or 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 14 and 15 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Forrest et al. (U.S. 6,125,226).

11. Regarding claim 14, Forrest et al. disclose an apparatus including: organic light emitting devices, which are designed to concentrate emitted light for high brightness (column 1, lines 5-7), having a microcavity structure (see Fig. 2C, item 112; column 3, lines 36-38), capable of emitting light resonating in the microcavity structure (column 3, lines 36-38); a light-gathering structure, overlying the organic electroluminescent device (see Fig. 2C, items 112 and 113, the light gathering structure 112 is on top of the electroluminescent device), capable of gathering the light emitted from the organic electroluminescent device; a light-shielding layer (see Fig. 2C, item 111; column 3, line 35), overlying the light-gathering structure (see Fig. 2C, items 111 and 112; the light-shielding layer 111 overlies the light-gathering region 112), having an opening through which a portion of the light emitted from the organic electroluminescent device passes (see Fig. 2C, region near item 119; column 3, lines 35-38). Although, a controller for providing image information is not specifically disclosed, because the organic light emitting device of Forrest et al. is designed to concentrate emitted light for high brightness (column 1, lines 5-7), there must be a controller in the organic light emitting device of Forrest et al., to concentrate the emitted light for high brightness.

Alternatively, Forrest et al. disclose an apparatus including: organic light emitting devices, which are designed to concentrate emitted light for high brightness (column 1, lines 5-7), having a microcavity structure (see Fig. 2C, item 112; column 3, lines 36-38), capable of emitting light resonating in the microcavity structure (column 3, lines 36-38); a light-shielding layer (see Fig. 2C, item 111; column 3, line 35; item 111 reflects light emitted from the organic layer, from exiting the device until it has been wave-guided to the opening in the light-shielding layer, therefore it shields the light's exit of the device) having an opening through which a portion of the light emitted from the organic electroluminescent device passes (see Fig. 2C, region near item 119; column 3, lines 35-38); and a light-gathering structure, disposed between the organic electroluminescent device and the light-shielding layer (see Fig. 2C, item 217, a portion of item 217, the sloped region on the right hand side of the device is disposed between the organic electroluminescent layer (item 113) and the light shielding region (item 111)), capable of gathering the light emitted from the organic electroluminescent device. Although, a controller for providing image information is not specifically disclosed, because the organic light emitting device of Forrest et al. is designed to concentrate emitted light for high brightness (column 1, lines 5-7), there must be a controller in the organic light emitting device of Forrest et al., to concentrate the emitted light for high brightness.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, that Forrest et al. use a controller capable of providing image information, since Forrest et al. disclose organic light emitting devices designed to concentrate image brightness.

12. Regarding claim 15, Forrest et al. disclose an apparatus including: organic light emitting devices, which are designed to concentrate emitted light for high brightness (column 1, lines 5-7); each having a microcavity structure (see Fig. 2C, item 112; column 3, lines 36-38), capable of emitting light resonating in the microcavity structure (column 3, lines 36-38); a light-gathering layer including light-gathering structures overlying the light-gathering structures (see Fig. 2C, items 112 and 113, the light gathering structure 112 is on top of the electroluminescent device), arranged so as to correspond to the organic electroluminescent devices (see Fig. 2C), capable of gathering the light emitted from the organic electroluminescent devices; and a light-shielding layer, overlying the light-gathering structures (see Fig. 2C, items 111 and 112; column 3, line 35; item 111 reflects light emitted from the organic layer, from exiting the device until it has been wave-guided to the opening in the light-shielding layer, therefore it shields the light's exit of the device) having openings through which a portion of the light emitted from the organic electroluminescent devices passes (see Fig. 2C, region near item 119; column 3, lines 35-38), wherein the organic electroluminescent devices are arranged in a plane and the openings are arranged so as to correspond to the light-gathering structures (see Fig. 2C). Although, a controller for providing image information is not specifically disclosed, because the organic light emitting device of Forrest et al. is designed to concentrate emitted light for high brightness (column 1, lines 5-7), there must be a controller in the organic light emitting device of Forrest et al., to concentrate the emitted light for high brightness.

Alternatively, Forrest et al. disclose an apparatus including: organic light emitting devices, which are designed to concentrate emitted light for high brightness (column 1, lines 5-7); each having a microcavity structure (see Fig. 2C, item 112; column 3, lines 36-38), capable of

emitting light resonating in the microcavity structure (column 3, lines 36-38); a light-gathering layer including light-gathering structures, arranged so as to correspond to the organic electroluminescent devices (see Fig. 2C, item 217, a portion of item 217, the sloped region on the right hand side of the device is disposed between the organic electroluminescent layer (item 113) and the light shielding region (item 111)), capable of gathering the light emitted from the organic electroluminescent devices; and a light-shielding layer (see Fig. 2C, item 111; column 3, line 35; item 111 reflects light emitted from the organic layer, from exiting the device until it has been wave-guided to the opening in the light-shielding layer, therefore it shields the light's exit of the device) having openings through which a portion of the light emitted from the organic electroluminescent devices passes (see Fig. 2C, region near item 119; column 3, lines 35-38), wherein the organic electroluminescent devices are arranged on a plane and the openings are arranged so as to correspond to the light-gathering structures (see Fig. 2C). Although, a controller for providing image information is not specifically disclosed, because the organic light emitting device of Forrest et al. is designed to concentrate emitted light for high brightness (column 1, lines 5-7), there must be a controller in the organic light emitting device of Forrest et al., to concentrate the emitted light for high brightness.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, that Forrest et al. use a controller capable of providing image information, since Forrest et al. disclose organic light emitting devices designed to concentrate image brightness.

Claim Rejections - 35 USC § 103

13. Claims 2, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forrest et al. (U.S. 6,125,226) in view of Wilson et al. (U.S. 5,994,835).

14. Regarding claims 2 and 8, Forrest et al. disclose the display according to claims 1 and 4. Forrest et al. do not teach that the light-gathering structure includes a lens having a focus, and the opening of the light-shielding layer is disposed in the vicinity of the focus of the lens.

Wilson et al. disclose an organic light-emitting device with a light-gathering structure (see Fig. 3, item 206; column 6, lines 32-33), including a lens with a focus (see Fig. 3, item 242; column 8, lines 22- 25). Wilson et al. further disclose that the lens is capable of focusing the emitted light beam onto a plane.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Forrest et al. to include a lens with the light-gathering structure, as taught by Wilson et al., for the added benefit of focusing the emitted light beam onto a plane.

15. Regarding claim 10, Forrest et al. disclose the display according to claim 4. Forrest et al. fail to disclose that the openings have a size determined based on a wavelength of light emitted from the organic electroluminescent devices.

Wilson et al. disclose an organic light-emitting device wherein the openings have a size determined based on a wavelength of light emitted from the organic electroluminescent devices (column 3, lines 50-52). Because the thickness of the waveguide layer is also the diameter of the opening (see Fig. 3, items 206 and 238) the thickness chosen to allow the waveguide to function

more efficiently, by being a multimode waveguide for multiple modes of the light beam, the opening acts as the same.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Forrest et al. to include that the openings have a size determined based on a wavelength of light emitted from the organic electroluminescent devices, as taught by Wilson et al., for the added benefit of improving the efficiency of the device by allowing the waveguide to function as a multimode waveguide for multiple modes of the light beam.

16. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forrest et al. (U.S. 6,125,226) in view of Matthies et al. (U.S. 2003/0011303).

17. Regarding claims 3 and 13, Forrest et al. disclose the display according to claims 1 and 4. Forrest et al. fail to teach that the light-shielding layer comprises a light-absorbing member capable of preventing external light transmitted from the outside from being reflected.

Matthies et al. disclose an organic light-emitting device with light-absorbing member (paragraph 0008). Matthies et al. further disclose that the light-absorbing members increase display contrast (paragraph 0008, lines 3-5).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Forrest et al. to include a light-absorbing member, as taught by Matthies et al., for the added benefit of an increased display contrast.

18. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forrest et al. (U.S. 6,125,226) in view of Biebuyck et al. (U.S. 5,855,994).

19. Regarding claim 5, Forrest et al. disclose the display according to claim 4. Forrest et al. fail to teach that the light-gathering layer includes first and second transparent members having different refractive indexes with spherical faces disposed therebetween.

Biebuyck et al. disclose an organic electroluminescent device wherein the light-gathering layer includes first and second transparent members having different refractive indexes with spherical faces disposed therebetween (see Fig. 2, item 20; column 5, lines 14-22). Lenses are light-gathering layers by definition that they gather light and converge it to a point or disperse it by divergence. Lines 21-22 of column 5 state, "a second layer of Siloxane with a higher refraction index can be added to enhance the lensing." Based on the shape of the curved face of lens, item 36, in figure 3, and the overhead view of the lenses, items 42, in figure 4, the lenses are spherical in shape.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Forrest et al. to include first and second transparent members having different refractive indexes with spherical faces disposed therebetween, as taught by Biebuyck et al., for the added benefit of enhanced lensing.

20. Regarding claim 11, Forrest et al. disclose the display according to claim 4. Forrest et al. fail to teach that the openings have a circular shape, a rectangular shape, or an elliptic shape.

Biebuyck et al. disclose an organic electroluminescent device wherein the openings have a circular shape, a rectangular shape, or an elliptic shape (see Fig. 1, the shape of item 18). The

circular shape would match the shape of the lens, thereby focusing the maximum amount of light.

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the organic light-emitting device of Forrest et al. to include the openings have a circular shape, a rectangular shape, or an elliptic shape, as taught by Biebuyck et al., to focus the maximum amount of light.

21. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Forrest et al. (U.S. 6,125,226) in view of Biebuyck et al. (U.S. 5,855,994) and further in view of Rawlings (U.S. 5,371,434).

22. Regarding claim 6, Forrest et al. and Biebuyck et al. disclose the display according to claim 5. Forrest et al. and Biebuyck et al. fail to disclose that the light-gathering layer includes a third transparent member having convex faces bulging toward the organic electroluminescent devices and a cavity portion disposed between the organic electroluminescent devices and the third transparent member.

Rawlings discloses an electroluminescent display with convex lenses (see Fig. 2, item 100; column 2, lines 64-68; column 3, lines 1-5). Rawlings further discloses that the lenses are used to focus the emitted light (column 1, lines 61-63).

Therefore, it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to modify the electroluminescent display of Forrest et al. to include convex lenses, as taught by Rawlings, to focus the emitted light.

Forrest et al., Biebuyck et al., and Rawlings discloses the claimed invention except that the light-gathering layer includes a third transparent member having convex faces bulging toward the organic electroluminescent devices and a cavity portion disposed between the organic electroluminescent devices and the third transparent member. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the light-gathering layer includes a third transparent member having convex faces bulging toward the organic electroluminescent devices and a cavity portion disposed between the organic electroluminescent devices and the third transparent member, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, USPQ 167.

Response to Arguments

23. The examiner acknowledges amendments to claims 1, 4, 6, 12, 14 and 15.

24. Forrest et al. does disclose all the structural elements in claims 1, 4, 14 and 15 of the claimed invention and therefore overcomes these claims. Although the applicant sees the function of Forrest et al. to differ from the claimed invention, the structural limitations claimed are met by Forrest et al. and therefore does constitute prior art.

Contact Information

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning

14 November 2005

ASHOK PATEL
PRIMARY EXAMINER